

REMARKS

1. Summary of the Office Action

In the office action mailed April 4, 2008, the Examiner rejected claim 37 under 35 U.S.C. § 101(a) as allegedly failing to be tangibly embodied. The Examiner rejected claims 7-12, 19-21, and 31-36 under 35 U.S.C. § 112 as allegedly being indefinite for failing to point out and distinctly claim the subject matter which Applicant regards as the invention. Further, the Examiner rejected claims 1-6, 13-18, 25-30, and 37 under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent Pub. No. 2002/0138542 (Bollella). The Examiner rejected claims 7-12, 19-24, and 31-35 anticipated allegedly being unpatentable over Bollella in view of U.S. Patent Number 5,628,013 (Anderson).

2. Status of the Claims

Pending in this application are claims 1-37, of which claims 1, 13, 25, and 37 are independent and the remainder are dependent. Claims 7, 12, 13, 19, 20, 25, 36 and 37 have been amended in this response.

3. Response to Claim Rejections

a. 35 U.S.C. § 101 objection to claim 37

Claim 37 has been amended to recite, *inter alia*, “An aircraft avionics device”, “a central processing unit (CPU)”, “memory”, and “at least one application that experiences activation time budget overruns while executing on the CPU and using the memory”. Support for these amendments may be found generally throughout the specification, and specifically in at least paragraph 0004 of the specification. As such, claim 37 clearly recites use of a CPU and memory as part of the aircraft avionics device. Therefore, Applicant requests the Examiner withdraw the rejection under 35 U.S.C. § 101 to claim 37.

b. 35 U.S.C. § 112 objection to claims 7-12, 19-21, and 31-36

Claims 7, 13, and 19 have been amended to correct the antecedent basis of the first activation time budget as comprising a first thread pad time. These amendments are typographical in nature and do not add new matter.

Applicant recognizes the term “pad time” is used as part of several terms in the claims. However, each pad time is clearly and definitely used. Claim 1 recites a “system pad time value” and an “updated pad time value”. In contrast to the system pad time value and the updated pad time value, claim 7 recites use of a “first thread pad time” which is part of a first activation time budget. Claims 19 and 31 also recite use of a first thread pad time as part of a first activation time budget. Applicant uses the term “first thread pad time” consistently throughout claims 7-12, 19-24, and 31-36 in the context of “a first activation time budget”. Therefore, Applicant requests that the Examiner withdraw the objections to claims 7-12, 19-21, and 31-36 under 35 U.S.C § 112.

c. 35 U.S.C. § 103 rejection to claims 1-6, 13-18, 25-30, and 37

Of these claims, claims 1, 13, 25, and 37 are independent and the remaining claims are dependent.

The Examiner rejected claim 1 as being unpatentable over Bollella. Claim 1 recites, *inter alia*, “setting a variable to a system pad time value predetermined before execution of the application”, “comparing the first actual activation time with a first activation time budget predetermined before execution of the application”, “if the first actual activation time exceeds the first activation time budget, adjusting the system pad time value to thereby obtain an updated pad time value”, “comparing the second actual activation time with a second activation time

budget predetermined before execution of the application,” and “if the second actual activation time exceeds the second activation time budget, adjusting the system pad time value to thereby obtain the updated pad time value.”

Applicant submits that Bollella does not render Applicant’s invention obvious. Bollella does not disclose or suggest Applicant’s recited use of both pads for each thread and a system pad used at the application level used by multiple threads. Also, Bollella does not disclose or suggest Applicant’s recited use of activation time budgets predetermined before execution of the application.

Bollella describes making a dynamic run-time decision to allow a long-running task to continue executing. Bollella, ¶ 0038. Bollella describes use of a cost extension, which is “an upper bound on the amount of additional time tasks can safely execute”. Bollella, ¶ 0040. Bollella describes that the “cost extension is computed for each task by incrementally adding a fixed percentage of the task’s cost.” *Id.* Initially, the cost extension for each task is 0. Bollella, ¶ 0041. If every task will meet its deadline, a cost extension for every task is computed. Bollella, ¶ 0043. The cost extension is incremented as long as every task will still meet its deadline after allocating the time for the sum of the cost extensions. *See id.* and Figure 3, blocks 330-350 (indicating a loop from block 350 to block 330 as long as feasibility check of block 340 succeeds).

No mention is made of an application level pad value or a system pad in the cited portions of Bollella. Rather, the “cost extension is computed for each task”. Bollella, ¶ 0040. As such, Bollella does not disclose or suggest use of a system pad used at the application level used by multiple threads. Further, Applicant therefore submits Bollella does not disclose or suggest Applicant’s recited use of both pads for each thread and a system pad used at the

application level used by multiple threads. In particular, Bollella does not disclose at least the combination of elements recited in claim 1 related to the system pad of “setting a variable to a system pad time value predetermined before execution of the application”, “if the first actual activation time exceeds the first activation time budget, adjusting the system pad time value to thereby obtain an updated pad time value”, and “if the second actual activation time exceeds the second activation time budget, adjusting the system pad time value to thereby obtain the updated pad time value.”

Also, Bollella does not disclose or suggest Applicant’s recited use of activation time budgets predetermined before execution of the application. Bollella discloses incremental computation and updating of the cost extensions based on the ability of all tasks to meet their deadlines. *See* Bollella, ¶ 0043. However, these cost extensions are updated as long as every task will still meet its deadline after allocating the time for the sum of the cost extensions. *See id.* and Figure 3, blocks 330-350. However, Bollella does not disclose or suggest the cost extensions are predetermined before execution of the application. In particular, Bollella does not disclose or suggest the elements of claim 1 that recite “a first activation time budget **predetermined before execution of the application**” and “a second activation time budget **predetermined before execution of the application.**” (emphasis added).

Applicant therefore submits that claim 1 is allowable, as Bollella does not disclose or suggest all of the elements of claim 1 and thus, claim 1 is not obvious over Bollella. Each of the remaining independent claims - claims 13, 25, and 37 - recite use of pads for each thread and a system pad used at the application level for multiple threads and activation time budgets predetermined before execution of the application using similar language to claim 1. As such, Applicant submits claims 13, 25, and 37 are allowable for at least the reasons presented for claim

1. In addition, without conceding the Examiner's assertions regarding the dependent claims, Applicant submits the dependent claims are allowable for at least the reason that they depend from their respective allowable independent claims.

4. Conclusion

In view of the foregoing, Applicant submits that claims 1-37 are allowable, and thus Applicant respectfully requests favorable reconsideration and allowance of these claims.

Should the Examiner wish to discuss this case with the undersigned, the Examiner is invited to call the undersigned at (312) 913-3338.

Respectfully submitted,

**McDONNELL BOEHNEN
HULBERT & BERGHOFF LLP**

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By: /Thomas J. Loos/
Thomas J. Loos
Reg. No. 60,161